

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. - 63. (Canceled)

64. (Currently Amended) A system for detecting target molecules in a sample, comprising:

an assembly comprising:

a silicon portion having an array of microsensors, wherein at least some of the microsensors are functionalized to deflect when exposed to target molecules; and

a glass portion, the silicon portion and the glass portion forming an individual fluid cell for each of the microsensors;

a single optical beam source configured to simultaneously direct an optical beam onto each of the microsensors in the array of microsensors; and

an optical detector array configured to simultaneously detect the position of each of the microsensors.

65. (Previously Presented) The system of claim 64, wherein the microsensors are microcantilevers.

66. (Previously Presented) The system of claim 64, wherein the microsensors are membranes.

67. (Previously Presented) The system of claim 65, wherein each of the microcantilevers has a reflective paddle portion.

68. (Previously Presented) The system of claim 67, wherein the reflective paddle portion is flat.

69. (Currently Amended) The system of claim 67, wherein the reflective paddle portion includes a strengthening ridge, which prevents the reflective paddle portion from bending.

70. (Previously Presented) The system of claim 64, wherein the array of microsensors is a linear array.

71. (Previously Presented) The system of claim 64, wherein the array of microsensors is a two-dimensional array.

72. (Previously Presented) The system of claim 64, wherein the optical beam is a collimated beam of laser light.

73. (Previously Presented) The system of claim 64, wherein the optical detector array is configured to simultaneously detect the position of each of the microsensors in real time.

74. (Previously Presented) The system of claim 64, wherein the optical detector array is a CCD array.

75. (Previously Presented) The system of claim 64, wherein the optical detector array is a CMOS array.

76. (Previously Presented) The system of claim 64, further comprising:
at least one microsensor that is not functionalized to deflect when exposed to the target molecules.

77. (Previously Presented) The system of claim 64, wherein different microsensors in the array are functionalized to detect different target molecules.

78. (Currently Amended) The system of claim 64, ~~further comprising:~~
~~a fluid cell,~~ wherein at least one of the microsensors is positioned to be submerged in the fluid cell when a fluid sample is received in the fluid cell.

79. (Currently Amended) The system of claim ~~78~~ 64, wherein the fluid cell is transparent to the optical beam.

80. (Currently Amended) The system of claim ~~78~~ 64, further comprising: a system for introducing a ~~the~~ fluid sample into the fluid cell, wherein flow of the fluid sample can be stopped in the fluid cell.

81. (Previously Presented) The system of claim 64, wherein the optical detector array is configured to simultaneously detect the position of each of the microsensors by interferometry.

82. (Previously Presented) The system of claim 64, wherein the optical detector array is configured to simultaneously detect the position of each of the microsensors by detecting movement of beams of light reflected by each of the microsensors.

83. (New) The system of claim 64, further comprising a beam splitter, wherein the beam splitter directs the optical beam onto each of the microsensors in the array of microsensors.

84. (New) The system of claim 83, further comprising a reference surface, and wherein the reference surface reflects part of the optical beam and transmits part of the optical beam.

85. (New) The system of claim 69, wherein the strengthening ridge is on a bottom portion of the reflective paddle.

86. (New) The system of claim 69, wherein the strengthening ridge comprises a ridge running around at least a portion of the reflective paddle.

87. (New) The system of claim 69, wherein the strengthening ridge is on a top portion and a bottom portion of the reflective paddle.

88. (New) The system of claim 64, wherein the glass portion is polydimethylsiloxane.

89. (New) The system of claim 64, wherein the silicon portion is silicon nitride.

90. (New) The system of claim 64, wherein the fluid cell has an inlet and an outlet.

91. (New) The system of claim 80, wherein the system for introducing a fluid sample into the fluid cell comprises at least one channel having a through hole formed in the silicon portion of the assembly.

92. (New) A system for detecting target molecules in a sample, comprising:

an array of microsensors, each microsensor having an individual microfluid reservoir, and wherein at least some of the microsensors are functionalized to deflect when exposed to a target molecule;

an optical beam source configured to simultaneously direct an optical beam onto each of the microsensors in the array of microsensors; and

an optical detector array configured to simultaneously detect the position of each of the microsensors.

93. (New) The system of claim 92, wherein the microsensors are microcantilevers.

94. (New) The system of claim 92, wherein the microsensors are membranes.

95. (New) The system of claim 92, wherein each of the microcantilevers has a reflective paddle portion.

96. (New) The system of claim 92, wherein the reflective paddle portion is flat.

97. (New) The system of claim 96, wherein the reflective paddle portion includes a strengthening ridge, which prevents the reflective paddle portion from bending.

98. (New) The system of claim 92, wherein the array of microsensors is a linear array.

99. (New) The system of claim 92, wherein the array of microsensors is a two-dimensional array.

100. (New) The system of claim 92, wherein the optical beam is a collimated beam of laser light.

101. (New) The system of claim 92, wherein the optical detector array is configured to simultaneously detect the position of each of the microsensors in real time.

102. (New) The system of claim 92, wherein the optical detector array is a CCD array.

103. (New) The system of claim 92, wherein the optical detector array is a CMOS array.

104. (New) The system of claim 92, further comprising at least one microsensor that is not functionalized to deflect when exposed to the target molecules.

105. (New) The system of claim 92, wherein different microsensors in the array are functionalized to detect different target molecules.

106. (New) The system of claim 92, wherein the reservoir is transparent to the optical beam.

107. (New) The system of claim 92, further comprising a system for introducing the fluid sample into the reservoir, wherein flow of the fluid sample can be stopped in the reservoir.

108. (New) The system of claim 92, wherein the optical detector array is configured to simultaneously detect the position of each of the microsensors by interferometry.

109. (New) The system of claim 92, wherein the optical detector array is configured to simultaneously detect the position of each of the microsensors by detecting movement of beams of light reflected by each of the microsensors.